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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/894,123	06/29/2001	Katsumi Kikuchi	Q65269	5729

7590 12/27/2002

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EXAMINER

COLEMAN, WILLIAM D

ART UNIT PAPER NUMBER

2823

DATE MAILED: 12/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/894,123

Applicant(s)

KIKUCHI ET AL.

Examiner

W. David Coleman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) 18-41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-8 and 15-17 is/are rejected.
- 7) ☒ Claim(s) 4 and 9-14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group II invention, claims 18-41 in Paper No. 6 is acknowledged.

Information Disclosure Statement

2. The information disclosure statement filed November 12, 2002 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered (i.e., publication no. 08-306820).

Claim Rejections - 35 USC § 103

3. Claims 1-3, 5-8 and 15-17 are rejected under 35 U.S.C. 103(a) as being obvious over Baba, U.S. Patent 6,317,333 B1 in view of Suzuki et al., U.S. Patent 5,977,633.
4. The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter

disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(1)(1) and § 706.02(1)(2).

5. Pertaining to claim 1, Baba discloses a semiconductor device substantially as claimed.

See **FIGS. 1 and 2** where Baba teaches a semiconductor package board comprising:

a metal base plate **4** having an opening suited for receiving
therein a semiconductor chip **2** and

a multilayer wiring film **1** (as seen in **FIG. 2**) formed on said metal base plate,
said multilayer wiring film having a first surface in contact with said metal

base plate and mounting thereon a plurality of first metal pads **9** within a
region exposed from said opening of said metal base plate. However, Baba fails to
specifically state that the base plate is metal. Suzuki discloses a metal base plate (see FIG. 5 of
Suzuki). In view of Suzuki, it would have been obvious to one of ordinary skill in the art to
incorporate the metal base plate of Suzuki into the Baba semiconductor device because the
semiconductor device structure is high in efficiency of heat radiation (column 2, lines 58-60).

6. Pertaining to claim 2, Baba teaches the semiconductor package board according to claim 1, wherein said multilayer wiring film includes a plurality of wiring layers and a plurality of insulating layers alternately stacked upon one another, via holes formed in said plurality of insulating layers for interconnecting, said plurality of wiring layers, and a plurality of second metal pads formed on a second surface of said multilayer wiring film opposite to said first surface, and wherein said second metal pads are electrically connected to said first metal pads through said wiring layers and said via holes.

7. Pertaining to claim 3, Baba teaches the semiconductor package board according to claim 1, wherein said multilayer wiring film has a metallic film in contact with a periphery of said opening of said metal base plate.

8. Pertaining to claim 5, Baba fails to teach the semiconductor package board according to claim 1, wherein said metal base plate comprises at least one metal selected from the group consisting of stainless steel, iron, nickel, copper, and aluminum, or an alloy thereof. Suzuki teaches wherein the metal base comprises copper. In view of Suzuki, it would have been obvious to one of ordinary skill in the art to incorporate copper into the Baba semiconductor device because the semiconductor device structure is high in efficiency of heat radiation (column 2, lines 58-60).

9. Pertaining to claim 6, Baba teaches the semiconductor package board according, to claim 1, wherein said first metal Pads are covered by a surface layer comprising at least one metal selected from the group consisting of gold, tin, and solder, or an alloy thereof.
10. Pertaining to claim 7, Baba teaches the semiconductor package board according to claim 2, wherein each of said insulating layers comprises one or more of organic resins selected from the group consisting of an epoxy resin, an epoxy acrylate resin, an urethan acrylate resin, a polyester resin, a phenol resin, a polyimide resin, a benzocyclobutene (BCB), and a polybenzoxazole (PBO).
11. Pertaining to claim 8, Baba teaches the semiconductor package board according to claim 2, further comprising a carrier base mounted on said second surface of said multilayer wiring film and connected to said second metal pads.
12. Pertaining to claim 15, Baba teaches a semiconductor device comprising the semiconductor package board according to claim 1, and a semiconductor chip disposed within said opening and connected to said first metal pads.
13. Pertaining to claim 16, Baba teaches the semiconductor device according to claim 15, wherein said semiconductor chip is flip-chip bonded to said first metal pads by a material made of either a metal having a low melting point or a conductive resin.

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14. Pertaining to claim 17, Baba teaches the semiconductor device according to claim 15, wherein said semiconductor chip is connected to said multilayer wiring film by at least one material selected from the group consisting of a metal having a low melting point, an organic resin, and a resin containing a metal.

Objections

15. Claims 4, 9, 10, 11, 12, 13 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

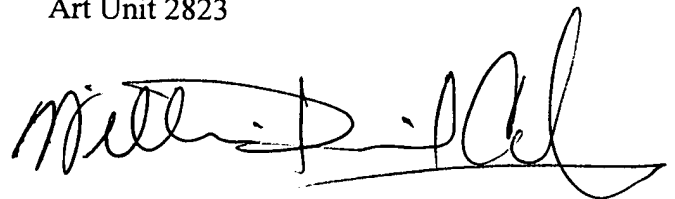
16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. David Coleman whose telephone number is 703-305-0004. The examiner can normally be reached on 9:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

W. David Coleman
Examiner
Art Unit 2823

WDC
December 24, 2002

A handwritten signature in black ink, appearing to read 'W. David Coleman', with a long horizontal flourish extending to the right.